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Royalty Management in Today's MMS

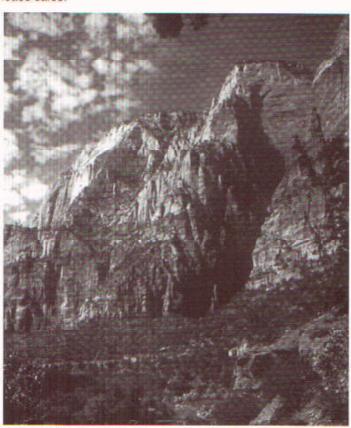
The MMS Royalty Management Program (RMP) administers revenues from federal mineral leases and from onshore and offshore mineral leases on federal and Indian lands. These leases constitute one of the nation's major sources of non-tax federal revenue.

The federal government leases some of its land to individuals and companies for mineral development. Initially, lease holders pay a lease sale *bonus*; subsequently, they pay *rent* until they develop the lease. If minerals are found, extracted, and sold, the federal government is entitled to a percentage *royalty* on the value of the resulting mineral production. Using sophisticated, computerized accounting systems, RMP processes more than \$300 million in benuces, rents, and royaltice each menth—nearly all via electronic funds transfers. In recent years, revenue from nearly 75,000 leases has averaged about \$4 billion annually. The exact total fluctuates with market prices, the quantity of production, and the number of lease sales.

Mineral Revenue Disbursement

Revenues collected from mineral leases on federal lands are distributed to the General Fund (\$53.8) billion through FY 1996) in the U.S. Treasury, to states, and to a number of designated specialpurpose accounts administered by federal agencies. These accounts include the Reclamation Fund (\$5.5 billion through FY 1996), which provides revenues to build, maintain, and operate water projects on western lands; the Land and Water Conservation Fund (\$12.7 billion through FY 1996), which helps state and local governments with outdoor recreational development and funds the purchase of federal park and recreation land; and the Historic Preservation Fund (\$2.3 billion through FV 1996), which provides matching grants to states, Indian tribes, and historically black colleges and universities to acquire and restore historic sites.

States also receive a portion of the revenues from onshore mineral leases on federal public lands within their borders. The money may be spent as the states deem necessary, without federal restrictions. Often it is used for schools, roads, public buildings, or general operations. Certain coastal states, with federal offshore leases on tracts adjacent to their seaward boundaries, receive a



Zion National Park, maintained in part by Land and Water Conservation Fund revenues. (Photo by National Park Service)

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Message from the Director

The past four years have been a time of significant change for MMS. Now, we find ourselves at the beginning of a new year and the start of the Clinton Administration's second term. This is an ideal time for us to review our recent accomplishments and outline our plans for the future.

The National Performance Review, which was highlighted in the last issue of MMS Today, is not a static, one-time exercise for us. "Reinvention" and "reengineering" are more than trendy jargon at MMS. Change is a process we deal with every day. Improvement is something we strive for in everything we do.

In this spirit, MMS's Royalty Management Program (RMP) is beginning a major pusiness process reengineering effort. A Program Reengineering Office was recently established and design teams are presently analyzing RMP business processes. Senior RMP managers fully endorse the reongineering concept and iccued a series of future performance goals whose achievement will require true "out of the box" thinking. Recognizing that greater risk lies in maintaining the status quo, team members were encouraged to challenge all assumptions, business processes, and supporting systems. We anticipate farreaching changes in operational strategies and organizational structures that will be both cost-effective and helpful to all who do business with HMP.

Perhaps the best description of our experience during the last four years would be learning to maintain high standards of customer service and create quality products. Declining budgets have challenged us to increase efficiency. We've met this challenge with an enthusiastic response from throughout the agency. With near-record production of offshore natural oas and rising production of offshore oil, revenue is increasing. At the same time, the



MMS Director Cynthia Quarterman

quality of our service has improved while costing the taxpayers less.

Nothing relates our recent successes more than the results of Lease Sale 166. On March 5, we held a recordbreaking sale of offshore natural gas and oil leases in the Central Gulf of Mexico attracting \$824,055,489 in high bids from 81 companies. More than half of the tracts bid on are leasted in deep water (i.e., water depth of over 200 meters).

Our future looks like more of the same. The Administration's goal of balancing the budget while meeting society's needs means that all of us in the federal government will have to continue to stretch available resources. Improving service is difficult in an environment of fewer dollars and federal downsizing, but we're excited about our achievements and the continuing challenges ahead.

In this issue we focus on two examples of MMS programs that demonstrate our response to the realities of today's streamlined federal government: the Royalty Management Program (RMP) and the International Program and Marine Minerals Division (INTERMAR).

The Royalty Management Program has been in the forefront of federal government management improvement.

INTERMAR is a prime example of an MMS unit that is doing much more and benefiting both the U.S. and foreign nations. Both international activities and the marine minerals functions have become very active and promise to carry their momentum into the future. At home, the Marine Minerals Division is looking for ways to help states benefit economically and environmentally by providing federal sand resources to help coastal states slow or stop coastal erosion, replenish beaches, and repair areas that have suffered extensive damage.

On the international front, MMS supports the Department of State with technical assistance, enters into agreements with foreign government organizations on issues of mutual interest, and provides training to international audiences based on funding from sources outside MMS's budget. The program's goal is to encourage developing nations to incorporate high environmental standards as they explore for, produce, and conserve their natural resources. MMS accomplishes this by demonstrating the expertise and technology that can mitigate environmental damage. This issue highlights a few of the important activities INTERMAR has tackled.

I'm proud of all the progress we've made throughout MMS. However, because RMP and INTERMAR tend to work in the background, I'm especially pleased to see them featured in this issue. I hope you enjoy reading about these examples of our continuing efforts to better serve the people and the industries we work with. We look forward to hearing from you.



Update: California Task Force and Crude Oil Underpricing

Minerals Management Service auditors in Houston, Dallas, and Tulsa, working with State of California staff to whom MMS has delegated the authority to conduct audits on behalf of MMS, have been in the spotlight since early last summer. That's when an Interagency Task Force commissioned by the Department of the Interior lesued its final report on possible underpayments of royalties on federal crude oil produced in California.

After a far-reaching study of production and royalties paid on California crude, the Interagency Task Force concluded that oil companies often received gross

California Undervaluation Audit Team members (L-R): Rolland G. Ball, Paul R. Price, Darnell L. Harris, Frank R. Lonberger, Raymond E. Sagstetter, Clifford Coston, and John R. Poppe. (Not pictured: Brenda Victor)

proceeds higher than posted prices. Because royalty payments rely heavily on posted prices, they had probably been substantially underpaid over many years. The California Undervaluation Team, based in the Houston Compliance Office, was assigned responsibility for creating an implementation plan and preparing audit guidelines to recoup the underpayments, with interest, fairly and accurately.

For the sake of coverage and cost-effectiveness, MMS's implementation plan targeted the 20 companies that together paid nearly 97 percent of the royalties on crude oil produced from federal leases in California during the time periods in question.

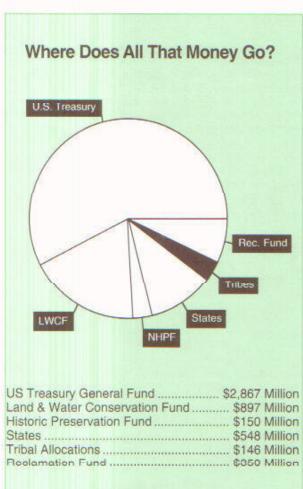
By December 20, 1996, bills totaling \$385 million had been issued to integrated companies (those with their own exploration, production, and refining facilities) for 1980-1988. The Houston Compliance Division expects to issue Orders to Perform based on audits of non-integrated companies for all periods and integrated companies for post-March 1, 1988, about a year after necessary data is received from the companies.

Although the problem of past crude oil underpricing is gradually moving toward closure, administrative appeals and lawsuits could extend the actual collection of part of the underpayments for some time.

-Suzanne Melancon



According to Undervaluation Audit Team member Brenda Victor, the auditors' tasks would be nearly impossible without high-tech help from computers and the ability to compare and process data electronically.



Assessments— A Success Story

Results of monitoring its new assessment policy for a full year show the royalty reporting error rate at an all-time low of 2.4 percent, and the production reporting error rate remains below three percent. This improvement shows that MMS is achieving its goal of receiving correct company reports the first time, which lowers costs for both MMS and reporters.

Credit for reducing error rates is attributed to several factors, including the continued diligence of companies and the MMS staff who work with them to submit accurate reports. Also contributing to the success is RMP's onsite royalty and production report training and increased electronic reporting, which has an inherently higher accuracy rate than paper reports. Royalty lines reported electronically have demonstrated an error rate of less than one percent, while the error rate for paper reports has been about six percent.

In the past, assessments have proven to be a useful tool for achieving timely and accurate reporting. Until assessments were first imposed in 1990, the error rate was 5.4 percent, but since then has continued to decline. In September 1995, the Royalty Management Program changed its penalty assessment policy for late and incorrect production and royalty reports. MMS eliminated assessments for late reporting and established a new policy to issue incorrect reporting assessments only if the monthly error rate exceeded the FY 95 average of three percent.

The Royalty Simplification and Fairness Act of 1996 amended how assessments will be applied. Beginning in March 1996, assessments will be imposed on reporters who chronically submit incorrect reports: "chronically" remains a criteria term that MMS will work with states and industry to define.

Electronic Commerce:

EDI, COLD, STRACNET, and RQS—typical bureaucratic alphabet soup? Sure looks like it. However, these acronyms stand for the technologies and systems the Royalty Management Program will use to achieve greater efficiency, lower costs, and improved service in the future. Clearly, technology is playing an increasingly important role in how RMP accomplishes its mission.

Electronic Data Interchange (EDI)

RMP employees worked with their peers in industry for several years to develop a comprehensive set of electronic data exchange standards. Now, with the electronic commerce technology in place and fully tested. RMP can electronically receive regulatory reports for royalty sales and production; bills for collection; and funds for royalties, rents, bonus payments, and assessments. As information has begun to flow between company systems and RMP computers with little or no human intervention, recent company surveys indicate widespread interest in moving away from paper reporting. RMP encourages using technology to achieve this goal.

Right now, 6% (130 out of 2,128) of the natural gas and oil royalty reporters report electronically, and 4% (126 out of 3,110) of natural gas and oil production reports are submitted electronically. That doesn't seem like much until you consider that these reporters—the major companies—account for more than half the production lines processed (53.5%).

MMS data entry costs—and consequently costs to the taxpayers—have declined steadily as more reports are submitted electronically. Approximately 72% of royalty reports and 47% of required production reports are now reported electronically by the small percentage of reporters who are the largest producers and create most of the reports. Error rates typically decline whenever electronic reporting is employed, as do the attendant costs of analysis and error correction. Finally, docu-

ment turnaround and the ability to expedite communications are greatly enhanced as data and report status can move quickly between reporting companies and RMP.

The technical infrastructure is in place to accommodate full implementation of electronic commerce. RMP staff can provide orientation, training, and technical support to any interested company. A brochure highlighting reporting options and contact points for additional information, comprehensive implementation guides, and handbooks are available to help reporters make the transition to electronic commerce. To initiate any of the paperless reporting options, contact one of the following MMS representatives: for royalty data, Ralph Spencer (1-800-525-0309); for production data, Dennis Johnson (1-800-525-7922); to inquire about EDI and E-mail, Tim Allard (1-800-619-4593); and for information on electronic payment options, Dave Menard (1-800-525-0309).

Computer Output on Laser Disk Technology

Computer Output on Laser Disk (COLD) technology and its companion imaging and workflow systems are further innovations that have been introduced into the RMP work environment.

The COLD system saves money. time, and effort for the 200 users it serves: RMP employees and employees from states and tribes that are on MMS's wide-area network. Eliminating microfiche processing alone saves \$130,000 each year. Because the configuration has ample excess capacity, greater efficiencies and savings are expected as more kinds of documents are included. Right now, 350 different reports go to COLD, about 40% of the total. As fewer reports are printed, RMP will save on paper and printing costs. Under the old system, data from paper documents was entered into the mainframe computer, which generated tapes that were converted to microfiche by a private off-site con-

Looking Toward the Future

tractor. After two or three days, the microfiche was returned to MMS, where it was stored or sorted and malled out to Indian tribes, states, and federal constituents for their financial records. At the end of the process, paper documents were scanned for archiving. The front-end work was labor intensive; it often took as long as three weeks before source documents were available.

Many reports generated by the mainframe computer are automatically transferred to COLD, where they are available online. By eliminating the microficho stop and cending imagos directly to COLD, data is available in minutes or hours rather than days or weeks.

Network Infrastructure

STRACNET is the acronym for the RMP's expanded wide-area computer network. It includes seven Indian tribes and ten states that have funded cooperative audit agreements or delegations of authority with the Department of the Interior under Sections 202 and 205 of the Federal Oil and Gas Royalty Management Act of 1982.

Cooperative agreements under Section 202 are currently in effect with the following tribes: Blackfeet, Jicarilla Apache, the Navajo Nation, Shoshone and Arapaho, Southern Ute, Ute, and Ute Mountain Ute.

Currently, cooperative agreements under Section 205 are in effect with the following states: Oalifornia, Oolorado, Louisiana, Montana, New Mexico, North Dakota, Oklahoma, Texas, Utah, and Wyoming.

November 1996 marked the successful conclusion of a two-year eftort to upgrade the network. Each remote site was provided with equipment, installation support, and extensive training on RMP systems and applications. Inclusion on the upgraded network greatly improves data access and system responsiveness. It also facilitates the rapid exchange and routing of information

between states, tribes, and MMS. Tribes and states can also print system reports at their sites and obtain problem diagnosis and software installations from MMS computer systems staff in Colorado.

Return visits to each of the state and tribal sites are planned for later this year to upgrade software, review network operations, and provide additional training. These network improvement efforts take MMS another step closer to achieving its vision of having each employee's and system user's workstation become the primary access point for information exchange and service requests.

RMP Query System

The Royalty Query System (RQS) is a client/server technology that splits an application into a "front-end" client component, which runs on the user's personal computer, and a "back-end" server component.

The client portion features point-andclick graphical-user interfaces. Upon receipt of a client request, the server provides the information directly to the client's application. Client/server technology can make it much easier to get information, manipulate and share data with others, and perform independent data analysis.

MMS staff and state and tribal sites connected to Royalty's wide-area network can access up to six years of royalty data and all lease information resident on RMP's databases. New features are continually being added to the RQS; this year, past production data will be available. The RQS allows users to graphically display royalty, production, and exception trends. It features a set of standard gueries and predefined reports. RQS also allows users to develop their own custom queries and transfer data to spreadsheets or databases for further analysis. The system is a powerful, easy-to-use tool that greatly enhances users' ability to use RMP's data.

Alternative Dispute Resolution Settlements

The main role of the Royalty Management Program's Office of Enforcement is to encourage compliance with mineral statutes, mineral leases, and regulations. RMP has employed an aggressive program using alternative dispute resolution (ADR) to resolve many old disputes as well as various billing actions and penalties to ensure compliance with MMS regulations.

Most of the Office of Enforcement's workload results from company audits by RMP that detect potential underpayments. Many cases involve disputes about the amount, rather than the fact, of underpayment. Using ADR to resolve these disputes has proven to be far more efficient than using traditional avenues because ADR saves the federal government the time and expense of litigation.

ADR also helps maintain good customer relations. RMP conducts its ADR sessions using a team that includes representatives from RMP divisions, other MMS and Solicitor's Office officials, and, if onshore or tribal monies are involved, representatives of affected states or Indian tribes.

ADR has both resolved the amount of money owed for past disputes and clarified the proper payment or valuation method for many companies. This has decreased the resources needed by RMP and the lessee for accounting and auditing and may help avoid future disputes.

Most of the outstanding issues involving production prior to 1900 have been resolved. In Fiscal Year 1996, 103 settlements resulted in royalty payments of approximately \$11 million. The number of settlements is expected to increase as existing policies affecting issues such as contract settlements are worked out and new issues surface as a result of changes brought about by the Federal Oil and Gas Royalty Simplification and Fairness Act of 1996, which calls for an attempt to negotiate every appealed order or bill.



Land and Water Conservation Fund money is used to purchase resources as a base for wildlife enhancement projects.

Continued from cover page

portion of the revenues from these leases as well. In Fiscal Year 1996, more than \$528 million was distributed directly to 38 coastal states. Revenues from Indian mineral leases are distributed by RMP through the Bureau of Indian Affairs. RMP administers revenues for mineral-producing tribes and nearly 20,000 individual allottees. There are approximately 3,800 producing or producible Indian leases, and in recent years more than \$150 million has been distributed annually.

State Payments

The more than \$528 million MMS distributed to states during the last fiscal year represents the states' cumula-

tive share of revenues collected for mineral production on federal lands located within their borders and from federal offshore natural gas and oil tracts adjacent to their shores. Disbursements are made to states on a monthly basis, as bonuses, rents, royalties, and other revenues are collected.

recreation.

Distribution of FY96 Mineral Revenues to States

Alabama	\$11,037,724,96
Alaska	
Arizona	\$44,931.13
Arkansas	
California	\$29,495,539,72
Colorado	\$32,125,252,68
Florida	\$29 142.00
Georgia	\$54.51
Idaho	
Illinois	\$84,360.26
Indiana	5103.90
Kansas	\$1,107,619.52
Kentucky	\$89,663.09
Louisiana	\$19,231,799,86
Michigan	\$739,773,46
Minnesota	\$6,797.83
Mississippi	\$990,205.74
Missouri	\$1,299,207.82
Missouri	\$20.853.081.24
Nebraska	\$16,495,88
The part of the second second	

Nevada	\$5,845,629.99
New Mexico	\$138,354,402.03
North Carolina	\$103.81
North Dakota	
Ohio	
Oklahoma	\$1,941,458.10
Oregon	\$47,415.40
Pennsylvania	\$23,428.00
South Carolina	\$138.75
South Dakota	3700,241,35
Tennessee	\$64.98
Texas	
Utah	\$30,625,048.64
Virginia	\$98,776.54
Washington	\$552,908.09
West Virginia	\$235,5192.69
Wisconsin	
Wyoming	

Mineral revenue deposited in the Land and Water Conservation Fund is used to buy

land for hiking, camping, and other forms of

FY 96 Total \$528,758,884.92

MMS Funds Cooperative Audit Programs with States and Tribes

During 1997, MMS will reimburse eight Indian tribes \$1,625,624 of their auditing costs for participating in MMS's Cooperative and Delegated Audit Program. The program enables a tribe to join with MMS in providing additional audit coverage of revenues derived from natural gas, oil, and other mineral leases located on its land.

Under provisions of the Federal Oil and Gas Royalty Management Act of 1982, MMS reimburses participating Indian tribes for costs of delegated audits, such as salaries and travel expenses. Recipient participants with audit agreements include the Navajo Nation, the Blackfeet, the Jicarilla Apache, the Ute, the Southern Ute, and the Ute Mountain Ute. Two other tribes, the Arapaho and the Shoshone, will share a single reimbursement under a combined agreement.

"More than \$160 million in mineral revenues were collected from Indian leases last year," said MMS Director Cynthia Quarterman. "As we look to improve our services and better utilize resources, such partnerships increase our auditing effectiveness."

In addition, MMS will award ten states a total of \$4,819,486 in Fiscal Year 1997 to fund state audits of mineral leases on federal public lands within their boundaries.

The award provides funds for work plans agreed to under Section 205 of the Federal Oil and Gas Royalty Management Act of 1982. Under Section 205 agreements, state officials perform audits and other related reviews on federal onshore natural gas, oil, coal, and other solld mineral or geothermal leases located in their respective states.

MMS's Cooperative and Delegated Audit Program enables participating states to supplement MMS's audit coverage of revenues from leases within the state. As is true of the tribal program, MMS reimburses states for the costs of audits, such as salaries and travel expenses. Participating states and the amounts they'll receive from MMS include California (\$1,035,637) Colorado (\$773,073), Louisiana (\$95,880), Montana (\$248,242), New Mexico (\$438,000), North Dakota (\$294.058). Oklahoma (\$325.934) Texas (\$200,884), Utah (\$445,443) and Wyoming (\$961,335).

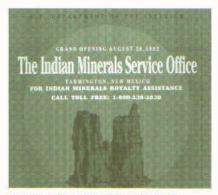
"Sharing resources and information in our working partnership has increased our auditing coverage and effectiveness. I'm pleased to see this cooperation continue," Quartorman said.

Farmington Pilot Program

Last November the Department of the Interior established a new Indian minerals management office in Farmington, New Mexico, to serve Navajo allottees. The new office is part of a two- to three-year pilot project that will integrate and consolidate, under a single line of authority, functions currently carried out by the Bureau of Indian Affairs (BIA), the Bureau of Land Management (BLM), and the Minerals Management Service (MMS). The goal is to provide "seamless" customer service to allottees.

The Interior Department first began consolidating Indian mineral activities when it established the Farmington Indian Minerals Office in 1992 (see photo at right). Employees of BIA, BLM, and MMS researched Indian landowners' inquiries and performed some technical lease management functions. While the three bureaus worked in a single facility and cooperated on various efforts, they generally carried out their respective responsibilities independently.

"With freedom from existing bureau guidelines, the office will focus on



meeting the unique needs of the Navajo allottees. It will have authority to redesign and reinvent necessary processes. This is a true example of reinventing government, with three separate bureaus working together in the best interests of their customers," said MMS Director Cynthia Quarterman.

Kevin Gambrell, a former mining financial analyst for the Navajo Nation Minerals Department, has been named project director. Gambrell will oversee a multi-disciplinary staff of 16, who will manage about 200 natural gas and oil leases that produce about \$2 million in royalties

annually for more than 3,000 Navajo allottees.

"While staff members continue to be employed by their respective agencies, they will report to Project Director Gambrell, who will be guided by the Indian Minerals Steering Committee [IMSC]," explained Quarterman. The IMSC is a Departmental committee chartered to deal with interburcau (BIA, BLM, MMS, and the Office of Special Trustee) issues and problems.

"Although there is still a lot to do, many administrative and operational improvements are underway or have already been completed," said Gambrell. "We're all eager to become a cohesive, efficient team. It's important that we make it easier for our customers to request, receive, and understand the information and services we provide. We want Navajo allottees to know that the Department of the Interior's Farmington Indian Minerals Office is always the right place to come to for their mineral business needs."

-Phil Sykora

"Major Portion" Enforcement Increases Royalties for Indians

The Royalty Management Program has increased its efforts to collect natural gas royalty payments for production on Indian lands by enforcing the "major portion" provision contained in most Indian leases.

Major portion analysis involves the calculation of the median price of all natural gas sold from a field or area. RMP collects additional royalties for its Indian customers any time this median price is greater than the natural gas price reported by the royalty payor.

Through its Valuation and Standards Division, RMP works closely with individual Indian tribes and allottee associations to develop appropriate major portion methodologies. This effort relies on identifying the best available sources of data for major portion calculation, identifying fields or areas, determining procedures for notifying companies of royalty underpayments, and collecting the money due.

RMP is in various stages of completion of the major portion collection process for the Southern Ute Tribe and allottees, the Blackfeet Tribe and allottees, the Navajo Nation and allottees, and individual Indian allottees whose leases are administered by the Bureau of Indian Affairs' Anadarko, Oklahoma, Area Office. Soon, RMP will notify royalty payors of potential major portion liabilities for the remaining Indian tribes and allottees (including the Northern Ute Tribe and allottees, the Ute Mountain Ute Tribe and allottees, and various Indian tribes and allottees in Oklahoma) that have natural gas production on their lands. As a result of its major portion implementation effort, MMS has collected and distributed more than \$2 million in additional royalties to its Indian customers.

This Is INTERMAR

The MMS International Activities and Marine Minerals Division (INTERMAR) has two responsibilities; 1) providing international technical assistance and cooperation and 2) overseeing nonenergy marine minerals activities. The division has a new chief, Carol Hartgen, who was formerly chief of MMS's Program Development and Planning Branch.

The MMS international program has three interrelated components: technical support to the U.S. Department of State, technical cooperation with other nations, and technical assistance abroad. The Department of State looks to MMS technical expertise for activities such as establishing international standards for the Law of the Sea, the London Dumping Convention, and the U.N. Commission on Sustainable Development. In its cooperative arrangements with Australia, the United Kingdom, Canada, Norway, Indonesia, and Russia, MMS conducts joint research, provides expertise for establishing international regulatory authorities, and shares technical information. Technical assistance and training sessions funded by third-party sources have been conducted in Hungary, Russia, Indonesia, and India.

MMS s marine minerals program oversees OCS activities dealing with minerals other than natural gas, oil, and sulphur. Deposits of hard minerals



Carol Hartgen

such as manganese and cobalt share an exciting potential for the future; however, the financial realities of their recovery prevent commercial development at this time. Presently, the hard mineral action on the OCS is limited to sand and gravel, known in the construction trade as construction aggregate. As other sources of aggregate become unavailable or prohibitively expensive, offshore sources begin to look more and more attractive. Right now, offshore sand is being used primarily for beach replenishment in places where beach nourishment seems more practical than letting the sea claim valuable property as it rearranges deposits of coastal sediment.

The following articles provide more detail about INTERMAR's dual role in international activities and marine minerals.

Asia Pacific Economic Cooperation

The Asia Pacific Economic Cooperation (APEC) forum was created in 1989 to promote, liberalize, and facilitate trade, and to provide technical assistance. The forum includes 18 member economies: Australia, Brunei Darussalam, Canada, Chile, China, Hong Kong, Indonesia, Japan, Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, the Philippines, Singapore, Chinese Taipei, Thailand, and the United States.

MMS supports U.S. membership in APEC by providing expertise in the areas of clean natural gas and oil production and a sustainable marine environment. Discussions are underway concerning a possible workshop to be co-sponsored by the offshore natural gas and oil regulatory agencies of the U.S., Indonesia, Malaysia, and Thailand

on the problems of aging offshore production platforms, including disposal and site clearance issued.

MMS currently has cooperative relationships with several APEC countries. A Memorandum of Understanding (MOU) is in place with Australia and Indonesia to share scientific and technical information related to offshore natural gas, oil, and mineral activities. An MOU is being developed with China to foster cooperation in royalty management as well as offshore natural gas and oil issues. The U.S. also has a Choperative Agreement with Canada to conduct jointly sponsored research on oil spill prevention and countermeasure technologies.

Deputy Director Maureen Walker, of the State Department's Office of Ocean Affairs, represents the U.S. at APEC'S marine Resources Conservation Working Group. Walker notes that MMS's ongoing cooperation with the private sector in carrying out its domestic mission puts MMS in a strong position to contribute to APEC's goal of sustaining the marine environment.

An important opportunity exists to develop a mutually beneficial dialogue within APEC about liberalizing trade. The innovative partnerships forged between MMS and industry could lead to an exchange of expertise and knowledge within APEC on subjects ranging from the Safety and Environmental Management Program to decommissioning offshore structures, developing artificial reefs, and conducting joint research with universities.

How Many Grains of Sand in the Ocean? 2 x 10²³ Off Our Atlantic Coast, But Who's Counting?

INTERMAR focuses most of its marine minerals effort on three activities: 1) responding to the growing list of requests from coastal states and localities for cooperative agreements to gain access to offshore sand deposits for beach replenishment, 2)preparing for possible sales of commercial deposits of construction aggregates, and 3) monitoring environmental studies to assure that sand and gravel dredging on federal lands uses the most environmentally benign technology available and takes place in locations where negative environmental impacts are minimal.

"I Can't Find My House!"

Many of us remember the headline from the Myrtle Beach Sun News that was reprinted across the country in the aftermath of Hurricane Hugo in 1989. Smashing ashore in coastal South Carolina, the storm screamed across narrow beaches. Unchecked by protective dunes, waves slammed into houses built precariously close to the water's edge. The result was devastation of personal property and severe damage to local businesses.

Off the Louisiana coast, barrier islands are disappearing. At Sandbridge, Virginia, only expensive sea walls are preventing beach houses from falling into the ocean. On North Carolina's Outer Banks, each major storm claims a few more inadequately protected houses. New Jersey and South Carolina have similar problems.

Why was the devastation from Hurricane Hugo so great? And why are so many other beach-front developments threatened by eroding beaches and storm damage? There is no single reason for all coastal problems, but, in general, coastal barrier islands and mainland beaches are unstable geological formations. Coastal wave and wind action is constantly rearranging deposits of beach sand. In other words, barrier islands are usually moving, often toward the mainland. In addition, local currents may be shifting the Islands right or left along the store.

This process is referred to as "coastal erosion." Coastal erosion affects as much as 80% of the continental United States coastline. It isn't just a few beach cottages that are threatened with lose, either. In many coastal resort areas billions of dollars have been spent to erect massive structures close



Hurricane Hugo slams ashore at Myrtle Beach, South Carolina.

to the beach. The question boils down to whether it makes sense to spend millions of dollars fighting to protect these investments, or whether it is better to let the sea claim them as part of a natural process.

In response to beach erosion, coastal communities have tried various protective approaches. These include hard structures such as groins, jetties, and sea walls; however, these hard, manmade structures often have unintended negative consequences in adjacent areas. Another approach is the "soft solution" of beach sand replenishment, also referred to as beach nourishment. Until recently, rebuilding beaches has been accomplished using onshore or near-shore sand sources. However, suitable sand from these sources may not be available. And even if it is, it may be prohibitively expensive to obtain.

In addition, disturbing near-shore sand may accelerate the erosion of the beach and actually turn out to be counterproductive. Studies of the beach erosion process have shown that the shape of the beach slope can be an important variable in determining the rate of erosion. The best shape to prevent erosion is a relatively constant gentle slope from shore to deep water. Borrowing sand from near shore usually leads to an area of steeper slope. The ocean fills in the relatively steep sided borrow hole and it tends to use the recently spread sand from the beach to do it.

Because dredging sand from near shore may be unwise, the search for beach replenishment material has begun to move farther offshore. Fortunately, new dredging technology has made it feasible to remove sand from deposits much farther from the location of use than was true in the past. New, more powerful dredges either pump the sand for miles from borrow area to beach site, or they use large hopper dredges to scoop up the sand and carry it to shore where it is spread on the beach.

With legislation passed in October 1994, federal offshore sand has become easier to obtain for projects that benefit the public. As a result of a new process of negotiated agreement, federal offshore sand has been used to rebuild beaches at Jacksonville, Florida, and the U.S. Navy Facility at Dam Neck, Virginia. Several more negotiations are in progress for proposed projects in Louisiana, South Carolina, and Maryland—and more are expected.

INTERMAR staff expect the Jacksonville project to be the prototype for many future beach replenishment projects using federal outer continental shelf (OCS) sand. When heavily developed Jacksonville ocean front began losing its beach at an alarming rate, the city approached the U.S. Army Corps of Engineers for help in finding a solution to the problem. The Corps came back with a plan to replenish the beach using the best available sand deposit, which was located more than three miles offshore in federal waters. Through negotiation, MMS agreed to allow the contractor, within the bounds of the Corps' plan, to take OCS sand and use it to rebuild the Jacksonville beach.

In the case of Dam Neck, the Navy faced the loss of valuable facilities, in-

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cluding the bachelor officer's quarters, the officer's club, the enlisted men's club, and a unique line of shoremounted ships' guns used for training. The beach in front of these facilities was inundated at high tide and the dune was protected with giant sand bags. After a detailed analysis, Navy engineers decided that the most costeffective solution to this problem was to reinforce the dune with a concrete structure, cover the structure with onshore sand, and rebuild the beach with sand from a deposit in federal waters. MMS approved this use of federal sand, and the contractor used a hopper dredge to collect the sand from an offshore sand bar and transport it to the beach.

As the heavy-duty equipment needed for dredging farther from shore becomes more widely available, INTERMAR expects federal sand to be used more frequently for beach replenishment. Negotiated agreements are being supported by studies to identify environmentally benign dredging technology and ensure that sand is removed only form places where negative environmental impacts are minimal. INTERMAR staff members are working hard on these combined efforts.

Aggregate Demand, Macroeconomics or Sand

Except when we plan a vacation, most of us don't spend much time thinking about sand. For the most part, we spend even less time thinking about gravel. Nevertheless, sand and gravel play a crucial role in our everyday lives.

Concrete is made from sand, gravel, Portland cement, and water. Concrete is everywhere. In terms of weight and volume, it's one of modern civilization's largest consumption items. Asphalt, a mixture of sand, gravel, and tar, is a close second. It is probably fair to say that many aspects of modern civilization depend on concrete and asphalt.

Riverbeds and quarries in ancient buried stream beds have provided many local sources of sand and gravel. However, in some areas suitable deposits of sand and gravel have either played out or become unavailable because of urban development and conservation efforts. While the United States has relied heavily on land-based sources of



Photo of newspaper headline (Myrtle Beach, SC Sun News, September 1989).



Modern dredging systems like the Vicksburg, pictured here, allow the use of sand resources from the federal OCS.

addredate. countries such as Japan and the United Kingdom have for years looked to offshore deposits for their building materials and have developed modern technology to obtain it. Japan meets about 25 percent of its consumption of aggregate from offshore deposits. The figure for the United Kingdom is about 20 percent. Coastal areas of the U.S. are now exploring the potential of offshore resources to fill their needs for construction aggregate.

Recently, MMS received its first request for a commercial sand and gravel lease sale. The area of interest is in federal waters off the coast of New Jersey. MMS has solicited and received about 250 comments, both pro and con, regarding the lease sale request and is deliberating about whether to proceed to the next step: an environmental evaluation. This step would entail preparation of a comprehensive environmental impact statement. Federal sand and gravel is being sought offshore New Jersey to help meet the construction aggregate needs of the New York-New Jersey metropolitan area. At present, dredging is occurring in several near-shore



The "hard structure" approach to protecting a road from the sea on Cape May, New Jersey.



Beach replenishment restores recreation areas and revives local economies.

areas for both commercial and beach nourishment projects in or adjacent to the New York metropolitan area.

As onshore deposits play out and more onshore and near-shore sand resources are placed off-limits for environmental or economic reasons, interest is growing in rederal offshore sand resources. MMS is taking a cautious approach to assessing the issues and is carefully considering possible mitigation, benefits, and consequences of mining federal sand resources. MMS has adopted this judicious strategy so that it will be prepared to meet future demand with wise resource management decisions.

Environmental Studies of OCS Sand Deposits and Dredging Technology

A growing need in some areas of the U.S., coupled with the development of appropriate technology, has painted a bright future for local communities to have these resources available for their beach renourishment projects. However, development of this federal resource warrants careful consideration. Many environmental questions

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MMS and the Transformation of the Russian Economy

by Gene George U.S. Agency for International Development

The U.S. government's assistance program for Russia supports the movement of the Russian economy from a command to a market-driven structure. The U.S. Agency for International Development (USAID), the Department of Energy, and the Department of the Interior—through the MMS and the U.S. Geological Survey—are the principal U.S. government entities promoting change in the energy sector.

Energy is making major contributions to Russia's transformation to a market economy. Russia is blessed with abundant and diverse natural resources. Until recently, there was little need for consumers to be concerned about inefficient use of these resources. All segments of Russian society traditionally have paid little attention to energy consumption patterns and usage. The Russian Energy Strategy (Main Directions), approved in December 1994, stated that wasteful use of energy accounts for 40-45 percent of Russia's overall energy demand and 35-40 percent of electricity consumption alone.

Historically, the Russian industrial sector has been characterized by its energy intensity and inefficiency. As a striking example, figures for the mid-1990s show a similar level of industrial per capita consumption of energy to that of the US, yet the per capita gross domestic product for Russia is several times lower. This reflects an extremely energy-intensive industrial sector.

Early assistance efforts focused on identifying key areas where old practices and organizations needed to be restructured, rethought, and revised in order to create a more favorable climate for both domestic and foreign investment. Investment is emphasized because financing requirements for the energy sector

are as great as Russia's natural reserves. Of the industries where the USAID and its sister agencies work, the natural gas and oil sector is probably the most critical for economic growth. MMS has played a central role in efforts to modernize this sector.

in particular, MMS's training program has helped Russian leaders recognize the need to consider a different way of doing business. The work MMS has completed in setting up offshore natural gas and oil conveyance methods, introducing environmental concerns to the industry, and



Typical Hussian Orthogox architecture

heightening awareness of the need for a strong regulatory program will have a lasting effect on the future Russian economy and the living conditions of Russia and its neighbors.

Success cannot always be measured in quantitative terms. MMS has been working to change the attitudes of Russian natural gas and oil producers toward the way they perform their work-not an easy task when it means changing how these workers and managers have been operating for most of their professional careers. Such changes come slowly and require establishing strong international ties.

guest article

Over the past several years, MMS has invested the time needed to create the strong professional relationships required for success. To their credit, the MMS staff assigned to this program have gained the respect of what was originally the Russian Geological Service and has recently been upgraded to the Ministry of Natural Resources. MMS instructors have communicated the right balance of technical expertise and policy guidance to their trainees-from mid-level technical experts to the Minister. Their success has been no small feat, considering the limited resources placed at the disposal of the program.

The accomplishments of the MMS in this area are prime examples of the wave of the future as the relationship between U.S. and Russia moves from that of provider and recipient of assistance to one of mutual partnership. The thrust of this relationship will be to encourage investment and promote trade.

U.S. assistance policymakers have a strong interest in creating the right climate for accelerating of U.S. trade and investment in Russia. Their approach is based on promoting those areas where the U.S. has a comparative advantage and establishing long-term bonds through partnerships. MMS's work is right in line with the thinking of these policymakers. Its approach positions MMS to continue its role in future cooperation between the U.S. and Russia.

Key elements for success are the creation of contracting procedures and practices, a strong regulatory framework, and ensuring a concern for the effects mineral development has on the environment. MMS is at the heart of efforts to achieve these goals. The work completed on

MMS From an International Perspective

The Minerals Management Service (MMS) has long been considered a leader in managing U.S. offshore natural gas, oil, and mineral resources and collecting, verifying, and disbursing revenues from federal onshore, federal offshore, and Indian lands. However, the U.S. operates in a global economy, and decisions made in distant world capitals and isolated industrial sites have a farreaching effect. In addition, the U.S. has an interest in maintaining the political stability of many parts of the world. One way to help keep democratic nations stable is to ensure a steady improvement in their economic well-being. In countries with significant energy mineral resources, MMS expertise can play a role in helping local economies succeed. MMS is also concerned about the impacts of energy mineral development on the global environment. Thus, the MMS mission has taken on an international dimension.

In defining its role in international affaire, MMS has identified a series of opportunities where its experience and expertise can aid other nations: 1) working with the State Department to influence issues affecting MMS's mission, 2) sharing knowledge and experience about how to minimize the impact of mineral development on the world's environment, and 3) helping countries convert to a freemarket economy in which they can efficiently manage their mineral resources. In addition, there is a payoff for MMS's domestic activities-MMS staff members are also continually learning from their association with colleagues in other countries. Following are a few examples of the international aspects of the MMS mission.

Global Issues Affecting MMS

MMS is working with the Department of State on the United Nations Convention on Law of the Sea. The Convention deals with the territory over which a nation has rights to seabed resources. MMS's task is to

delineate on charts the apparent outer limits of the U.S. continental margin. The Convention requires nations to pay a royalty to an international body on mineral production from areas beyond 200 nautical miles from its baseline. As leasing approaches this limit, there could be a conflict with the provisions of the recent Deep Water Royalty Relief Act

Other activities include participation in United Nations Environment Program activities to reduce marine pollution from land-based sources, including offshore natural gas and oil platforms. MMS also provided input into the offshore natural gas and oil aspects of the oceans chapter of Agenda 21, a consensus document produced by the United Nations Conference on the Environment.

Operations and Safety Management

Cooperative projects with Canada including studies with the Depart ment of the Environment on oil spill detection using an airborne oil laser fluorsensor; weathering and treatment by chemical dispersants or burning; sea ice mechanics with the National Energy Board; and a pilot marine mining environmental study with the Centre for Cold Ocean Resources Engineering.

Cooperation with the Health and Safety Executive of the United Kingdom is carried out through an Exchange of Letters. MMS shares information and experience about safety of personnel and offshore installations and pipelines including legislative, statutory, and regulatory requirements; administrative procedures and practices; risk analysis; structural and other engineering and technical analyses; and public education.

MMS has a draft Memorandum of Understanding (MOU) with the Government of India's Directorate General of Hydrocarbons to cooper-



Russian students at an MMS training

ate on regulations and enforcement, resource assessment, economic analysis, data management, leasing management, reserves estimation and management, safety and environmental operations, platform and pipeline decommissioning, technology assessment, and training. And MMS is currently working with the India Oil and Natural Gao Corporation on a jointly sponsored international workshop on oil spill response and cooperation tentatively scheduled for spring 1997.

In July 1996 MMS signed an MOU with the Indonesian Directorate General of Oil and Gas. Cooperation is planned in oil spill response and safety and environmental issues. The relationship may include a jointly sponsored workshop on platform removal. Other cooperation will focus on training and qualifications requirements for industry personnel conducting drilling, production, and workover and completion operations and training for government safety inspectors.

The Department of State encourages MMS's participation in the Asia Pacific Economic Cooperation forum. Ongoing activities in the area include an MOU with Australia to share information about offshore natural gas, oil, and mineral activities. Several Australian inspectors plan to visit the

MMS Pacific Region to observe MMS operations. MMS has participated in several joint research projects with the National Oil Company of Japan on the fatigue of highstrength steels. MMS also provided a keynote address at the Petronas Research and Scientific Services Technology Forum in Malaysia and discussed the structural integrity of natural gas and oil production platforms.

Resources and Environmental Management

MMS drafted a proposal for a cooperative project with the Russian Ministry of Natural Resources to promote safe and environmentally sound natural gas and oil operating practices in the Russian Arctic. The project has since evolved into a multi-lateral cooperative effort with other Russian organizations and Norway. One goal is to help the Russian Federation develop a comprehensive safety and environmental program for offshore natural gas and oil operations, including Arctic waters, consistent with international standards.

Since 1994, MMS has provided technical assistance to the former Soviet Union as its independent states convert to a free-market economy. MMS conducted workshops in Russia and the United States on topics such as conveying offshore natural gas and oil exploration and development rights, assessing environmental impacts, evaluating mineral resources, and managing revenue and information. MMS also assisted the Hungarian Mining Office in establishing a framework to manage Hungary's mineral resources and provided advice to Romania's newly established National Agency for Mineral Resources.

Royalty Management

A draft MOU has been prepared with the Ministry of Geology and Mineral Resources of the People's Republic



Hungarian parliament buildings, Budapoet,

of China. The parties agree to share information about administering a revenue management program, determining product valuation, developing a system for collecting and managing mineral revenues, and other issues.

MMS staff met with the Norwegian Oil Directorate, other government organizations, and several North Sea producers to learn about Norway's policies and practices regarding royalty collections, valuation, audit, verification, deep water relief, and automated systems. This information is part of the MMS Royalty Managemont Program's roongineering project, which will define and implement the best, most cost-effective strategy for revenue collection. A similar meeting is planned with Canada. Cooperation with Norway on royalty management issues will continue. The U.S. and Norway are considering a forum on royalty management issues that will also include the United Kingdom, Australia, and Canada.

Some of the international forums in which MMS participates include the Western Hemisphere Oil and Gas Environmental Forum, the International Petroleum Research and Technology Forum, the Intergovernmental Oceanographic Commission, and the International Regulators Forum. MMS's participation contrib-

utes to the wise management of the world's mineral resources and helps MM3 maintain its position as a world leader in the field.

The MMS international program has a busy agenda. Fulfilling it requires the skills and energies of many MMS managers and staff. But to date results from the program show that the program and the people are getting the job done.

-Bill King

Continued from page 11

standard contracting documents and procurement processes will help level the playing field for U.S. investors. At the same time, MMS has promoted a sound regulatory program to protect the integrity of the natural resource base while providing a transparent operating climate Most important, MMS has continued to keep environmental concerns at the top of its agenda.

The enthusiasm of Ministry and industry participants in a workshop entitled "Conveying Offshore Exploration and Development Rights" demonstrates the success of these efforts. For some time into the future there will be a need for us to engage Russian policy makers and practitioners in all aspects of natural resource management, and MMS will continue to play a vital role in maintaining this partnership.

Mr. Gene George, who arrived in Moscow in August of 1994, is chief of the Office of Economic Reform for the U.S. AID in Russia. In his 22-year career, he has worked in Haiti, Bangladesh, and Pakistan. He also spent four years with the Peace Corps in Nepal.

FYI



During Sale 161, Chuck Hopson (right), the Gulf Region's Leasing Activities Chief, explains the way bids are processed to John Brooks (left), of Britain's Department of Trade and Industry. Also pictured (L-R) are Associate Director Lucy Querques Denett, Assistant Secretary Bob Armstrong, and Statoli's manager Sigmund Rodnett of Norway.

Gulf of Mexico Draws International Visitors

Natural gas and oil development in the Gulf of Mexico is at an all-time high. As a result, the Gulf has become a popular destination for international visitors interested in developing their domestic natural gas and oil resources back home.

With over 3,800 platforms in place and over 1,500 new leases awarded in 1996, activity in the Gulf of Mexico OCS Regional Office is non-stop. This year the Gulf Region has hosted visitors from more countries than ever before. Representatives of foreign governments and the natural gas and oil industry have come from Norway, Great Britain, Germany, Japan, Mexico, and Trinidad.

Visitors are drawn to the Gulf for many reasons: to visit offshore facilities, to discuss how regulations are implemented, and to see how MMS handles and controls the massive amounts of information it collects. Recently, for example, visitors from Trinidad's Ministry of Energy spent two weeks with New Orleans District inspectors and engineers learning how MMS permits and inspects offshore operations, and British officials came here to study the lease sale process.

Coordinating so many visits keeps the Gulf of Mexico Regional Office busy, but no one is complaining. Spreading the word about MMS's offshore program is always worthwhile, and the process usually turns out to be a learning experience for everyone involved — MMS staff and visitors alike.

-Caryl Fagot

1995 Annual Report Available

The Minerals Management
Service's latest edition of its annual minerals revenue report is
now available in both print and
electronic versions. The Mineral
Revenues 1995 Report On Receipts From Federal And Indian
Leases covers the activities of
MMS's Royalty Management Program during 1995, including collection of \$3.8 billion in bonuses,
rents, and royalties from Indian
and federal offshore and onshore
minerals leases.

The annual report also offers tables and statistics relating to the generation, distribution, and history of revenues obtained under this program. Included are sales amounts, values, and royalties for a variety of minerals in individual states.

Copies of the 1995 report are now available, free of charge, by writing or calling:

Michael Baugher Public Affairs Officer Royalty Management Program Minerals Management Service P.O. Box 25165 -- MS-3000 Denver, CO 80225 (303)231-3162

The 1995 report, and earlier editions, are also available through MMS's World Wide Web home page at http://www.mms.gov.

Key Staff Changes at MMS

In January, Jim Shaw, Associate Director of the MMS Royalty Management Program, resigned to return to the private sector. MMS Director Cynthia Quarterman has announced the following staff changes:

Lucy Querques Denett, Associate Director of Policy and Management Improvement, will take Shaw's place as Associate Director of the Royalty Management Program. She has a Master's in Public Administration from American University and has been in federal service for nearly 22 years. Denett has worked at the Department of Energy and in MMS's Royalty Management Program, including serving as acting Deputy Associate Director. She received the Interior Department's Meritorious Service Award in 1991 and the Presidential Meritorious Rank Award in 1996.

Quarterman also announced that Deputy Director Carolita Kallaur will become Associate Director for Offshore Minerals Management. She has a Master's in Economics from the University of Connecticut and has been in federal service for 29 years. Before joining MMS, she worked on offshore natural gas and oil matters in the Bureau of Land Management and the Office of the Secretary. She has garnered numerous honors, including the Interior Department's Meritorious Service Award in 1985, the Distinguished Service Award in 1987, the Presidential Meritorious Rank Award in 1987 and 1992, and the Presidential Distinguished Rank Award in 1995 for her exceptional contributions to the offshore program.

"It will be very difficult to find individuals to replace the energy, skills and devotion that Lucy and Carolita brought to these positions," said Quarterman.

Bob Brown will serve as acting Associate Director of Policy and Management Improvement and will continue as Associate Director of Administration and Budget. During his 20-year federal career, Brown has served in increasingly more responsible positions in the human resources and administrative arenas, as well as recently acting as Associate Director of both the Royalty Management and Offshore Minerals Management Programs. He received the Navy Department's Meritorious Civilian Service Award in 1983, the Interior Department's Meritorious Service Award in 1993, and is a 1996 recipient of the Interior Department's Distinguished Service Award.



Lucy Querques Denett, Associate Director of the Royalty Management Program.



Carolita Kalluar, Associate Director for Offshore Minerals Management.



Bob Brown, Associate Director for Administration and Budget, and Acting Associate Director for Policy and Management Improvement.

Continued from page 10

must be answered and multiple-use conflicts resolved. For instance, inappropriate dredging may temporarily disrupt benthic biological communities, harm organisms within the water column, damage other marine life, or significantly change the physical environment. Most of these potential impacts can be mitigated or avoided altogether. The problem is to identify them prior to inflicting irreparable damage.

INTERMAR is conducting generic studies that examine impacts associated with different types of dredging operations and technologies (beach nourishment dredging and construction aggregate dredging). These studies also examine engineering details that operators could adopt to avoid adverse impacts. Site-specific studies may be designed to identify sensitive areas to avoid in the dredging process, or they may investigate the advisability of targeting particular sand borrow areas for beach renourishment. Site-specific studies usually collect biological data to identify possible species at risk. They also include wave modeling and current pattern identification to preclude potentially damaging changes in local current or wave patterns that could be caused by dredging activities.

Regardless of the study results, some will question the wisdom of disrupting the seabed in any way. MMS is determined to work with its customers to find the common ground that will allow desirable uses of offshore sand and gravel resources.

-Bill King

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